Remarks

Claims 29-51 are pending. Claims 29, 32, 34, 43, 45, 46, 48, and 49 have been finally rejected. Claim 29 has been amended.

Applicants have cited numerous references and U.S. Patents in this response. Copies of each cited document have been submitted with this response.

Claim Rejections - 35 U.S.C. § 102(e)

The Examiner rejected claims 29, 32, 34, 43, 45, 46, 48, and 49 under 35 U.S.C. § 102(e) as being anticipated by Zhong et al. (U.S. Pat. No. 6,468,649). Applicants respectfully traverse.

"A claim is anticipated *only* if *each and every* element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference" *Verdegal Bros. v. Union Oil Co. of California,* 814 F.2d 628, 631 (Fed. Cir. 1987) emphasis added. The MPEP further states that the "identical invention must be shown in as complete detail as is contained in the . . . claim." *Richardson v. Suzuki Motor Co.,* 868 F.2d 1226, 1236 (Fed. Cir. 1989).

Zhong fails to disclose at least two elements of claims 29 and 46 and all the claims that depend from claims 29 and 46. First, Zhong does not disclose or suggest a coating that is comprised of a self-assembling monolayer and second, Zhong fails to disclose or suggest a self assembling monolayer coating (or any coating for that matter) that is covalently attached to a surface via activation of latent reactive groups.

Applicants previously argued:

> As described at page 11, lines 8-13, a SAM is formed of molecules that spontaneous orient themselves with respect to a surface. "Self assembled" refers to the spontaneous orientation of **molecules** rather than layers. For example, the specification states that the composition is brought into

> sufficient proximity to a surface to permit the **molecules** to spontaneously orient themselves into substantially monolayer form upon the surface (pg. 11, lines 10-13). Likewise, at page 11 line 20 - page 12 line 2, it is described that "when a composition of SAM molecules in carrier solvent is brought into physical proximity with the surface, or interface, the **molecule domains spontaneously and preferentially orient themselves** toward either the solvent or surface/interface, in order to form a monolayer" (emphasis added). Thus, the self-assembling component of a SAM refers to the spontaneous (self) orientation (assembly) of **molecules.**

The Examiner stated in the Office Action dated May 15, 2007, that the argument was "understood and appreciated" but that the "features upon which applicant relies are not present in the claims". Applicant respectfully traverses.

The Federal Circuit has set forth the standard by which the USPTO is to construe claims. Section 2111 of the MPEP quotes the language of the Federal Circuit: "The Patent and Trademark Office ("PTO") determines the scope of the claims in patent applications not solely on the basis of the claim language, but upon giving claim their broadest reasonable construction in light of the specification as it would be interpreted by one of ordinary skill in the art". See MPEP § 2111 citing *Phillips v. AWH Corp.,* 415 F.3d 1303, 1321 (Fed. Cir. 2005). Furthermore, the MPEP is very explicit in its directive that terms in the claims should be given their ordinary and customary meaning. MPEP § 2111.01 (III). "[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention…" *Phillips v. AWH Corp.,* 415 F.3d 1303, 1313 (Fed. Cir. 2005).

The MPEP provides guidance on ascertaining the plain and customary meaning of claim terms. "It is the use of the words in the context of the specification and customarily by those skilled in the relevant art that accurately reflects both the ordinary and customary meaning of the terms in the claims." *See Ferguson Beauregard/Logic Controls v. Mega Systems,* 350 F.3d 1327, 1338 (Fed. Cir. 2003). Further, the Federal Circuit has utilized dictionary definitions to determine the ordinary and customary meaning of claim terms. See *Id.*

Applicants appreciate that limitations from the specification cannot be imported into the claims. See *In re Van Guens,* 988 F.2d 1181 (Fed. Cir. 1993). However, there is a distinction between using the specification to define a term and impermissible importation of limitations. Indeed, the Federal Circuit has directed that "[c]laims are not to be read in a vacuum, and limitations therein are to be **interpreted in light of the specification** in giving them their broadest reasonable interpretation." See MPEP § 2111.01 citing *In Re Marosi,* F.2d 799 (Fed. Cir. 1983) (emphasis added).

Zhong do not disclose or even suggest coatings that are comprised of a self-assembled monolayer as defined by the instant claims. The phrase "self-assembling monolayer" has a specific definition both in the instant claims and a customary meaning to those skilled in the art.

First, the plain meaning of the term "monolayer" as evidenced by textbooks in the field and Webster's Dictionary, means a "film considered to be only one molecule thick". See Webster's entry and the definition provided by the Third Edition of the textbook, Physical Chemistry of Surfaces, page 101 appended hereto. As already established, the terms of the claims, during examination by the USPTO must be given their plain and customary meaning. (See MPEP § 2111.01 (III)).

Further, as evidenced by the definition of the term "monolayer" in numerous issued patents, those skilled in the art define the term identical to that of the dictionary meaning. See col. 9, lines 47-49 U.S. Pat. No. 6,838,382; col. 7, lines 53-54 U.S. Pat. No. 6,630,358; col. 5, lines 56-57 (each defining a monolayer as a film or layer one molecule thick).

Nothing in the instant specification indicates that anything other than the ordinary and customary meaning of the term "monolayer" is employed. To the contrary, the specification indicates that the term is used according to its plain and customary meaning. For example, at page 4, lines 1-3, the use of self-assembly technology to produce **monomolecular** films is described. Likewise, at page 15, lines 4-5, the use of the Langmuir Blodgett technique to produce the self-assembling monolayers of the invention are described. The Langmuir Blodgett technique is well known to those of ordinary skill in the art to produce films that are one molecule thick. See Materials Science of

Synthetic Membranes, D. Lloyd Ed., page 251, 1985. See also Physical Chemistry of Surfaces, A. Adamson, page 100. (Appended hereto).

Zhong does not disclose a coating that comprises a monolayer as the term is defined by the instant claims, the specification, and customarily by those skilled in the art. The Examiner explains at page 4 of the Office Action of May 15, 2007 that term "monolayer" is interpreted to mean "a film or layer that is one molecule thick…". However, the Examiner does not acknowledge that there is simply no support for the conclusion that Zhong teaches, discloses or even suggests a monolayer, let alone a self-assembling monolayer.

Therefore, Zhong does not anticipate the instant claims since it fails to teach or suggest a monolayer, which is a feature of the presently rejected claims. Applicants respectfully request that the rejection be withdrawn.

The term "self-assembling" is also an easily recognizable, common term with a very specific plain and customary meaning. The term "self assembling" means "… the autonomous organization of components into patterns or structures without human intervention. See Whitesides et. al Science, 295(5564), 2418-2421, 2002 (appended hereto). See also Col. 1, lines 58-60 U.S. Pat. No. 6,632,536; col. 8 lines 5-6 U.S. Pat. No. 6,630,358.

Nothing in the instant specification indicates that anything other than the ordinary and customary meaning is employed. For example, at page 11, line 22 - page 12, line 2, the **spontaneous** orientation of the SAM molecules with respect to the solvent and/or surface is described. Further examples of spontaneous orientation can be found at page 9, lines 13-20; page11, lines 10-13; page 14, lines 19-20; page 15, lines 4-8; and page 18, lines 10-11.

Zhong does not teach or suggest self-assembling monolayer. The Examiner indicates that she defines the terms as "a layer or coating that is physically or chemically adhered to another layer which itself aligns the coats". This definition is at odds with the plain and customary meaning of the term which is employed in the instant patent application. Further, the Zhong coatings are adhered to each other through the addition of the crosslinking agent, the addition of which constitutes "human intervention". Additionally,

the self-assembly at issue is that of a monolayer itself and not to a multi-layered coating. That is, the self-assembly refers to individual molecules rather than to two coating layers.

Finally, Zhong does not disclose or suggest the use of latent reactive groups to covalently attach a self-assembled monolayer to a surface. The Examiner states that both Zhong and the instant specification "mention diazirines". However, the MPEP directs that "[t]he identical invention must be shown in as complete detail as is contained … in the claim." See MPEP § 2131 citing *Verdegaal Bros. v. Union Oil Co. of California,* 814 F.2d 628, 631 (Fed. Cir. 1987).

Claim 29 was amended to more clearly illustrate that the SAM molecules are covalently attached to the surface via activation of latent reactive groups. Zhong fails to disclose the use of latent reactive groups to covalently **attach a self-assembled monolayer (or any other type of coating) to a surface**, which is the level of description contained in the claims.

The Examiner mistaken characterized the mere mention of diazirines as a teaching of the use of a photoreactive group for covalent attachment to a surface. The teaching of Zhong relevant to the diazirines can be found at Col. 7, lines 32-38 where it is stated that "polyfunctional crosslinking agents having functional groups capable of reacting with organic acid groups" are employed. Further, The Zhong crosslinking agent crosslinking agent "serves two purposes" 1) to cross link the first polymeric coating and 2) to covalently bond the **first and second** polymeric coatings together (Col. 8, lines 8-10). Thus, Zhong does not teach the use of photoreactive groups (or any other latent reactive groups) to covalently attach a monolayer or other coating to a surface.

Further, the Examiner states that both Zhong and the instant specification contain latent reactive groups that become activated when coming into contact with a particular moiety. The Examiner cites bacteria as the activating force in Zhong but does not identify the reactive group. This analysis is odds with the accepted definition of the phrase "latent reactive group".

Applicants define latent reactive groups in the instant specification. At col. 4, lines 11-15 of U.S. Pat. No. 5,002,582 (which was incorporated by reference into the present application at page 19, line 7-8) latent reactive groups are defined as "groups which respond to specific applied external stimuli to undergo active specie generation

with resultant covalent bonding to an adjacent support surface". Zhong does not teach or even suggest such reactive groups.

Firstly and significantly, the bacteria in Zhong cannot be properly classified as activating the coating. The coating in Zhong is repellent to bacteria simply because of its hydrophilic lubricious nature; it is simply slippery to bacteria. See Col. 4 lines 19-21. There is no mention in Zhong and Applicants are unaware in general of the concept of bacteria as an activating force for a latent reactive group.

Zhong does not disclose or suggest the use of latent reactive groups to covalently attach self-assembling monolayer molecules (or any other type of molecule or coating) to a device surface. Therefore, Zhong does not anticipate claims 29, 46, or any claim depending therefrom. Applicant respectfully requests that the rejection be withdrawn.

In view of the foregoing, it is submitted that each of the pending claims is in condition for allowance. Favorable consideration and prompt allowance of the application are respectfully requested. If the Examiner feels that prosecution of the present application can be materially advanced by a telephonic interview, the undersigned would welcome a call at the number listed below.

Respectfully submitted,

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Jeannine J. Thiele
U.S. Registration No. 54,939
Patent Counsel
SurModics, Inc.
9924 West 74th Str.
Eden Prairie, MN 55344
(952) 345-3549

Mia M. Mendoza
U.S. Registration No. 56,688
Fredrikson & Byron, P.A.
200 South Sixth Street
Minneapolis, MN 55402-1425
(612) 492-7262
Customer No. 022859